

Psychoeducation training in stress management strategies as adjunct therapy in temporomandibular joint dysfunction – preliminary study

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Summary

The current state of knowledge on psychological stress management among patients suffering from temporomandibular joint dysfunction as well as lack of educational projects aimed at this patient group in the available literature became an inspiration to develop a psychoeducational programme. The aim of the programme was to provide basic information on the contribution of stressors in the aetiology of temporomandibular joint dysfunction and educate on methods of coping with stress most commonly used in psychology. The purpose of this study was to compile the programme and to validate its usefulness. Study population was a group of 25 patients aged 19–48. The usefulness of psychoeducation training was assessed via a questionnaire at baseline (survey 1) and a month after the psychoeducation programme (survey 2). Preliminary results suggest that the programme improves the emotional state of patients receiving prosthetic treatment for temporomandibular disorders.

psychoeducation/temporomandibular joint dysfunction/depression/stress

INTRODUCTION

Temporomandibular joint (TMJ) dysfunction is a syndrome characterised by abnormal morphology and functional disorders of otherwise symmetrically balanced temporomandibular joints, muscle disorders in the anterior and central part of the skull, and impaired spatial relationship of the opposing dental arches [1–4]. Aetiological factors of TMJ dysfunctions can be local, systemic or generalised. The most common local aetiological factors

are congenital or acquired occlusion defects (including those of iatrogenic origin), lost and unrestored teeth, particularly within the occlusion support zones, pathological oral behaviours termed occlusal parafunctions, and past trauma and injuries to the face and head. Nowadays, psychological and behavioural factors are believed to play a significant role in TMJ dysfunction. These are externalised by different personality traits and patterns, coping styles, maladaptive behaviours, and physiological reactions to chronic stress. Equally often, however, TMJ dysfunction is linked with and accompanies specific psychopathological conditions, including hypochondria, conversion disorders and depression [1,3–10].

Psychoeducation is universally recognised and commonly used to support therapy and rehabilitation of individuals diagnosed with spe-

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cific mental disorders. It uses various methods and techniques or is delivered through structured education programmes to promote recovery and minimise the potential impact of a disease or disability. It was developed to prevent excessive reliance on pharmacotherapy among patients by eliminating irrational beliefs about the mode of action and the potential adverse effects of medications, to increase patient tolerance to adverse clinical symptoms, and to teach patients strategies and skills to enable them to cope with daily life and the consequences of their illness. Yet many researchers argue that the benefits of psychoeducation are often underestimated by clinicians who manage patients diagnosed with somatoform disorders established to be of psychogenic nature [11-21].

Psychoeducational interventions are a means of clarifying patient's knowledge and awareness of the causes, nature and course of their underlying disease, its aggravating factors and risks, as well as enabling patients to overcome their mental problems and giving them a sense of empowerment and self-determination, which are considered important in the recovery process. The ultimate goal of psychoeducation is to increase the patient's capability to cope with the effects of the disease and to improve their psychosomatic condition. Recent evidence from the literature shows that psychoeducation is not just about teaching patients about their disease, but is instead an interactive process involving elements of psychotherapeutic strategies. Psychoeducation training is based on a therapeutic interaction that facilitates free exchange of information between the trainer and the patient, with due respect for their subjective opinions. Several studies have demonstrated that psychoeducation may significantly reduce illness duration. Psychoeducation consultations can improve patients' stress resistance by teaching them new skills or methods of coping with stress, helping them increase their self-esteem, develop their ability to solve problems and believe in themselves, and to increase their sense of security [17-22].

Study objectives

This study was inspired by the lack of literature data concerning educational programmes

developed for and conducted among patients receiving treatment for temporomandibular joint dysfunction. The purpose of this study was to develop a psychoeducation programme and to validate its usefulness in promoting stress management strategies among patients suffering from TMJ disorders. This was a non-randomised, open-label clinical study.

Study population

Study population was a group of 25 patients aged 19–48, both men and women, who were referred to the Temporomandibular Joint Dysfunction Department at the Prosthetics Outpatient Clinic of the Jagiellonian University Medical College, Cracow, Poland to receive prosthetic treatment of TMJ dysfunction characterized by pain. Patients were informed that psychoeducation training was voluntary and that they could withdraw at any time during the study.

METHOD

TMJ dysfunction was diagnosed on the basis of masticatory function examination and additional tests, using a diagnostic questionnaire of the Temporomandibular Joint Dysfunction Department. The prosthetic treatment (dental braces for occlusion) was augmented by secondary physiotherapeutic procedures, pharmacological treatment (intramuscular injections of botulinum toxin type A and intra-articular injections of platelet-rich-plasma), and psychoeducation training on stress management strategies. An original psychoeducation programme was used in the study, consisting of 3 individual 45-minute sessions with a psychologist taking place once a week. Each session was individually planned in consideration of the psychophysical condition of the patient. Patients were required to regularly attend the sessions.

During the first session, the psychologist explained the nature of stress, the role of positive and negative stressors, and taught about various personality types and stress response patterns. Patients were also made aware of a universal nature of stress management difficulties among healthy individuals and people with TMJ

dysfunction. Particular attention was also given to stress as an aetiological factor in TMJ dysfunction.

The second consultation was focused on presenting various stress management strategies: behaviour modification, physical self-regulation training for the management of temporomandibular disorders, Jacobson’s progressive relaxation, regular desensitization or visualisation, and psychological distancing. Patients were also told about the importance of maintaining personal relationships and regular physical exercise in alleviating nervous tension.

During the third session, patients selected optimal relaxation and stress management techniques. They also discussed ways of modifying or abandoning unconstructive behaviours as part of their chosen stress management strategy. They used stress management techniques in practice. There was also time for discussion and questions.

The usefulness of psychoeducation training was assessed based on a survey. It consisted of 20 questions about the frequency with which patients experience different emotional states, including anxiety, fear, nervousness, helplessness,

emotional tension, as well as sleep disorders, impatience and guilt. Patients were asked to choose one of the following answers: frequently, sometimes and never, scored 5, 3 or 1, respectively. The higher the score, the worse the patient’s outcome. The survey also included four non-scored questions, asking the patients whether they had attended any similar programmes or visited a psychiatrist in the past.

The survey was conducted twice, at baseline (survey 1) and 1 month after the psychoeducation programme (survey 2). Both surveys asked the same questions. Results were statistically analysed for medium, maximum and minimum score, median, standard deviation and statistical significance (at $p \leq 0.05$).

RESULTS

The results of the survey and statistical analysis data are presented in Table 1 and Fig. 1. A statistically significant difference was detected between survey 1 (M=4.20, SD=0.28) and survey 2 (M=2.98, SD=0.21); $t(24)=16.8183$, $p < 0.001$.

Table 1. Results of the survey at baseline (survey 1) and at 1 month post-intervention (survey 2).

Survey	Mean (range)	Median	SD
Survey 1	4.20 (3.00 – 4.375)	4.250	0.282
Survey 2	2.98 (2.75 – 3.250)	2.870	0.214

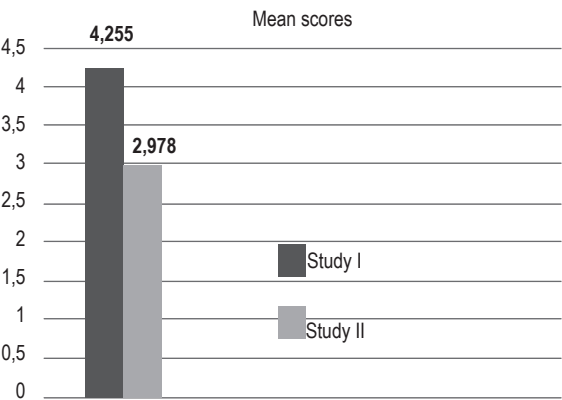


Fig. 1 Medium score in survey 1 and 2

In addition, the majority of participants expressed an interest in continuing their training with a psychologist and positively evaluated the

psychoeducation programme. Interestingly, patients stated they had no previous knowledge about stress management methods.

DISCUSSION

Long-lasting psychological tension and stress are counted among aetiological factors of cranio-mandibular disorders and are increasingly gaining attention from physicians [23-27]. Despite growing exposure to stress among young people, there are no educational programmes dedicated to the issues of stress management, and therefore stress will continue to cause physiological reactions. Additionally, psychological tension is accompanied by reduced adaptive capabilities of the cranio-mandibular system. This activates compensatory mechanisms and causes

loss of balance in both muscle and joint components of the masticatory system. Excessive tension in mastication muscles may be caused by the activation of the limbic system (a system that controls emotions) or the central nervous system [25,27-29].

Chronic emotional tension is associated with contemporary lifestyle, hurried living, growing expectations, increased workloads and lack of rest and relaxation. Some personality traits, including neuroticism and introversion, by their nature make people more vulnerable to stress. In some cases, personality features may affect how individuals cope with stressors, depending on how they experience emotional states, their behaviour patterns, or stressor characteristics. The harmful effects of stress will vary according to the intensity of the stressor, as well as individual vulnerability and adaptive capabilities [5,7,26-29].

Stress may significantly contribute to the overgrowth of mastication muscles and the resulting imbalance in the cranio-mandibular system. Involving a psychologist in prosthetic treatment of patients with TMJ disorders may improve treatment effectiveness. Higher tolerance of stressors acquired through psychoeducation is considered an essential condition for progressive remission of the symptoms of the dysfunction [5,7,21,24,29].

The results of this study and literature research show a positive impact of psychoeducation consultations on the recovery of patients suffering from mental disorders. Psychoeducation helps patients improve their self-esteem, develop skills and strategies to control their mental well-being, provides them with emotional support and teaches them problem-solving skills. Patients learn practical ways of managing chronic stress. The training also makes the patient more aware of the effects of excessive emotional stress on the development of TMJ dysfunction [17-20,30,31].

A substantial number of psychotherapeutic techniques can be used as an important addition to the regular basic treatment of TMJ dysfunction by working systematically towards minimising stress and making patients less vulnerable to stressors, improving their stress management skills, or teaching them how to manage fear and anxiety – the most common problems reported to affect patients with TMJ dys-

function. Behaviour modification, Carlsson's and Bertrand's physical self-regulation training for the management of temporomandibular disorders, Jacobson's progressive relaxation, and regular desensitization are techniques particularly worth considering. Psychoeducation training appears to be particularly useful in making patients aware of the importance of psychosocial factors in their recovery, with a focus on support from relatives or close friends, sufficient sleep, breathing exercises or regular physical exercise. By reducing the intensity of aetiological factors which contribute to the development of TMJ dysfunction, the training has a positive effect on the course of the disease and the improvement of functional disorders [1,7,8,20,25,27].

CONCLUSIONS

Our preliminary results suggest that a psychoeducation programme improves the emotional status of patients receiving prosthetic treatment for temporomandibular disorders. Development of an algorithm for these patients needs further research and testing.

REFERENCES

1. Okeson J. Management of Temporomandibular Disorders and Occlusion. 7th edition. New York, NY: Elsevier; 2013.
2. Hughes J. Pain Management: From Basics to Clinical Practice. New York; 2008.
3. Madland G, Feinmann C. Chronic facial pain: a multidisciplinary problem. *J Neurol Neurosurg Psychiatry*. 2001; 71: 716-719.
4. Glaros A, Williams K, Lauste L. The role of parafunctions, emotions and stress in predicting facial pain. *J Am Dent Assoc*. 2005; 136: 451-458.
5. Rai B, Kaur J. Association between stress, sleep quality and temporomandibular joint dysfunction: simulated Mars mission. *Oman Med J*. 2013; 3: 216-219.
6. Grey R, Davies S, Quayle A. The clinical guide to temporomandibular disorders. The clinical guide series. *Brit Dent J*. 2003; 55-60: 23-30.
7. Pihut M, Gierowski K, Ceranowicz P, Ferendiuk E. Psychoemotional background of temporomandibular joint dysfunction and possible drug therapy. *Lett Drug Des Discov*. 2015; 1: 766-770.
8. Mongin F, Ciccone G, Ibertis F, Negro C. Personality characteristics and accompanying symptoms in temporomandib-

- ular dysfunction, headache and facial pain. *J Orofac Pain*. 2000; 14: 52–58.
9. Meldolesi G, Picardi A, Accivile E, Toraldo di Francia R, Biondi M. Personality and psychopathology in patients with temporomandibular joint pain-dysfunction syndrome. A controlled investigation. *Psychother Psychosom*. 2000; 69: 322–328.
10. Nifosi F, Violato E, Pavan C, Sifari L, Novello G, Guarda Nardini L, et al. Psychopathology and clinical features in an Italian sample of patients with myofascial and temporomandibular joint pain: preliminary data. *Int J Psychiatry Med*. 2007; 37: 283–300.
11. Dixon L, Adams C, Lucksted A. Update on family psychoeducation for schizophrenia. *Schizophr Bull*. 2000; 26: 137–139.
12. Zubin J, Spring B. Vulnerability: a new view of schizophrenia. *J Abnorm Psychol*. 1977; 86: 103–126.
13. Falloon IR, Held T, Roncone R, Coverdale JH, Laidlaw TM. Optimal treatment strategies to enhance recovery from schizophrenia. *Aust N Z J Psychiatry*. 1998; 32: 43–49.
14. Möller HJ. Course and long-term treatment of schizophrenic psychoses. *Pharmacopsych*. 2005; 37: 126–135.
15. Shimazu K, Shimodera S, Mino Y, Nishida A, Kamimura N, Sawada K, et al. Family psychoeducation for major depression: randomised controlled trial. *Br J Psychiatry*. 2011; 198: 385–390.
16. Colom F, Vieta E, Sánchez-Moreno J, Palomino-Otiniano R, Reinares M, Goikolea JM, et al. Group psychoeducation for stabilised bipolar disorders: 5-year outcome of a randomised clinical trial. *Br J Psychiatry*. 2009; 194: 260–265.
17. Chądzyńska M, Meder J, Chądzyńska K. The participation of patients with schizophrenia in psychoeducation – the analysis from the patients' perspective. *Psychiatria Pol*. 2009; 6: 693–704.
18. Chądzyńska M, Meder J, Chądzyńska K, Drożdżyńska A. Psychoeducation for patients with schizophrenia – a preliminary analysis of psychoeducational sessions methodology. *Postępy Psychiatr i Neurol*. 2011; 20: 201–206.
19. Kordas W, Warchoń A, Kurtyka A, Walczewski K, Bogacz J, Słowik P. Psychoeducation and psychological prevention for family members of schizophrenic patients: the project report. *Hygeia Public Health*. 2014; 49: 120–126.
20. Walsh J. *Psychoeducation in Mental Health*. Chicago, Illinois: Lyceum Books; 2010.
21. Grabski B, Maczka G, Dudek D. The role of psychoeducation in complex treatment of bipolar disorder. *Arch Psychiatry Psychotherapy*. 2007; 3: 35–41.
22. Swaminath G. Psychoeducation. *Indian J Psychiatry*. 2009; 51: 171–172.
23. Eisenlohr-Moul T, Burris J, Evans D. Pain acceptance, psychological functioning and self-regulatory fatigue in temporomandibular disorders. *Health Psychol*. 2012; 32: 36–39.
24. Manfredini D, Winocur E, Ahlberg J, Guarda-Novrdini L, Lobbozo F. Psychosocial impairment in temporomandibular RDC/TMD axis II findings from a multicentre study. *J Dent*. 2010; 38: 765–771.
25. Lambert C, Sanders A, Wilder S, Slade G, Vanlun S, Russell E, et al. Chronic HPA Axis response to stress in temporomandibular disorder. *J Dent Hyg*. 2014; 88: 1–5.
26. Miettinen O, Lahti S, Sipilä K. Psychosocial aspects of temporomandibular disorders and oral health-related quality-of-life. *Acta Odontol Scand*. 2012; 70: 331–336.
27. Huang X, Liu H, Xiao P, Wang Y, Zhang H. Effect of psychological stress on the structure of temporomandibular joint and the expression of MMP-3 and TIMP-3 in the cartilage in rats. *Br J Oral Maxillofac Surg*. 2014; 52: 709–714.
28. Wu G, Chen L, Fei H, Su Y, Zhu G, Chen Y. Psychological stress may contribute to temporomandibular joint disorder in rats. *J Surg Res*. 2013; 183: 223–229.
29. Slade G, Diatchenko L, Bhalang K, Sigurdsson A, Fillingim R, Belfer I, et al. Influence of psychological factor on risk of temporomandibular disorders. *J Dent Res*. 2007; 86: 1120–1125.
30. Poole R, Smith D, Simpson S. How patients contribute to an online psychoeducation forum for bipolar disorder: a virtual participant observation study. *JMIR Ment Health*. 2015; 8: e21.
31. Nam I. Effect of psychoeducation on helpful support for complicated grief: a preliminary randomized controlled single-blind study. *Psychol Med*. 2015; 22: 1–7.